

REMARKS

Claims 1, 2 and 4-22 are present in this application. Claims 8-21 have been withdrawn.

Of the examined claims 1, 4-7, and 22, claim 1 is an independent claim.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Claim Objection

Claims 4-7 have been objected to for depending on canceled claim 3. Accordingly, claims 4-7 have been amended to correct dependency. Applicants request that the objection be withdrawn.

35 U.S.C § 103 (a) Rejection – Jacuet, Ishikawa, Giacomelli

Claims 1, 3-7 and 22 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,283,799 (Jacquet) in view of JP 02-137383 (Ishikawa) and Giacomelli. Applicants have amended claim 1. Applicants respectfully traverse this rejection based on the claims as amended.

The Final Office Action, dated July 31, 2007 (“Office Action”), states that the system taught by Jacquet, Ishikawa, and Giacomelli is the same as the detailed configuration of claim 1, and would therefore achieve the effect of reducing the feedback-induced noise. (Office Action at page 4).

This allegation implies that all cited references have a common goal of reducing feedback-induced noise. Applicants submit that the assumption of reducing feed-back induced noise is not correct. None of the cited references disclose devices that would be subject to the feedback-induced noise of the present invention.

As has previously been explained, the semiconductor laser device of the present invention operates in an environment of a high-density recording medium. In such an environment, some light is reflected from a surface of the recording medium and returned to the laser, which is considered as “feedback light.” The returned feedback light and light emitted from the laser can interfere with each other, resulting in a type of noise, termed “feedback-induced noise.” (Specification at page 1, lines 25-30).

Jacquet does not disclose its laser as part of an optical pickup device or other environment that would encounter this “feedback-induced noise.” Similarly, Giacomelli does not disclose a laser in an environment that would produce “feedback-induced noise.” The Ishikawa reference is discussed in the present specification with respect to Figs. 16 and 17. Based on the discussion in the present specification, Ishikawa also does not teach an environment having feedback-induced noise.

Thus, the allegation that the cited references would achieve the effect of reducing the feedback-induced noise is not supported by the teachings of the cited references.

The Office Action appears to assume that a configuration resulting from the combination of Jacquet, Ishikawa, and Giacomelli would be the same as the configuration recited in claim 1.

In particular, the Office Action continues to assume that Giacomelli teaching of utilization of SR in order to improve the quality of the output signal, implies that improved quality allows for improvement of amplitude and reduction of feedback noise (Office Action at page 4, second full paragraph).

Claim 1 requires adjustments to modulation current and noise current so as to increase amplitude of the modulated optical output, providing an effect of reducing the feedback induced noise. Giacomelli’s teaching of improved quality of the output signal does not involve an increase in amplitude, and does not relate to reduction of feedback induced noise.

Applicants have amended claim 1 to clarify the structural elements and related functions. For example, in claim 1, the claim limitation of to increase amplitude is explicitly recited as a function of the active layer.

Applicants submit that the cited references, either alone or in combination, fail to teach or suggest at least the claimed feature “said active layer, responsive to adjustment of the intensity of said modulation current and the intensity of said noise current with respect to each other, increasing amplitude of said modulated optical output in order to achieve an effect of reducing the feedback-induced noise.”

Applicants request that the rejection be reconsidered and withdrawn.

New Claim

Claim 23 has been added. New claim 23 emphasizes structural and functional aspects of the present invention. In particular, new claim 23 recites features of the active layer, including

“wherein said active layer has hysteresis and an associated lasing threshold such that an optical output modulated as a stochastic resonance is produced, and

said active layer, responsive to adjustment in the intensity of said modulation current and the intensity of said noise current with respect to each other, increasing amplitude of said modulated optical output to a level sufficient to substantially cancel the feedback-induced noise without increasing input power.”

Applicants submit that the cited prior art fail to teach features of the active layer of the present semiconductor laser device as recited in claim 23.

Conclusion

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact **Robert Downs** Reg. No. 48,222 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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